

MATERIAL SAFETY DATA SHEET



LORSBAN * 4E-SG INSECTICIDE (XRM 5318)

Emergency Phone: 800-992-5994
Dow AgroSciences* Indianapolis, IN 46268

Effective Date: 01/01/98
Product Code: 40780
MSDS: 004437

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: LORSBAN * 4E-SG INSECTICIDE (XRM 5318)

COMPANY IDENTIFICATION:

Dow AgroSciences
P.O. Box 681428
9330 Zionsville Road
Indianapolis, IN 46268-1189
www.dowagro.com

2. COMPOSITION/INFORMATION ON INGREDIENTS:

Chlorpyrifos: O,O-Diethyl O-(3,5,6-Trichloro-2-Pyridinyl)
Phosphorothioate CAS # 002921-88-2 Nom. 41.7%
Proprietary Ingredients, Total Nom. 58.3%

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR) 1910.1200. In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

3. HAZARDOUS IDENTIFICATIONS:

EMERGENCY OVERVIEW

Hazardous Chemical. Pale yellow liquid with an aromatic odor. May cause moderate eye irritation with slight corneal injury. Prolonged exposure may cause slight skin irritation or an allergic reaction in some individuals. The LD50 for skin absorption in rabbits is >2000 mg/kg. The Oral LD50 for male rats is 444 mg/kg and for female rats is 268 mg/kg. The inhalation LC50 for rats is >5 mg/L for 4 hours. Cholinesterase inhibitor. Flash point: 221°F (105°C). Toxic, irritating gases will be formed if involved in fire. Toxic to fish, wildlife, avian, and aquatic organisms.

EMERGENCY PHONE NUMBER: (U.S.) 800-992-5994

POTENTIAL HEALTH EFFECTS: This section includes possible adverse effects which could occur if this material is not handled in the recommended manner.

EYE: May cause moderate eye irritation and slight corneal injury.

SKIN: Prolonged exposure may cause slight skin irritation. Prolonged or frequently repeated skin contact may cause allergic skin reactions in some individuals. A single prolonged exposure is not likely to result in the material being absorbed through the skin in harmful amounts. The LD50 for skin absorption in rabbits is >2000 mg/kg.

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INGESTION: Single dose oral toxicity is moderate. The oral LD50 for rats is 444 mg/kg (males) and 268 mg/kg (females). Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing amounts larger than that may cause serious injury, even death. If aspirated (liquid enters the lung), may cause lung damage or even death due to chemical pneumonia.

INHALATION: Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. Signs and symptoms of excessive exposure may be central nervous system effects and anesthetic or narcotic effects. The LC50 for rats is >5 mg/L for 4 hours.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: Excessive exposure may produce organophosphate type cholinesterase inhibition. Signs and symptoms of excessive exposure to chlorpyrifos may be headache, dizziness, incoordination, muscle twitching, tremors, nausea, abdominal cramps, diarrhea, sweating, pinpoint pupils, blurred vision, salivation, tearing, tightness in chest, excessive urination, convulsions. Chlorpyrifos produced mild adrenal effects when fed to rats, but only at doses that greatly exceeded any exposures that would be received during use of this product.

CANCER INFORMATION: Chlorpyrifos did not cause cancer in long-term animal studies.

TERATOLOGY (BIRTH DEFECTS): Chlorpyrifos did not cause birth defects in laboratory animals.

REPRODUCTIVE EFFECTS: Chlorpyrifos did not interfere with fertility in reproduction studies in laboratory animals. Some evidence of toxicity to the offspring occurred, but only at a dose high enough to produce significant toxicity to the parent animals.

4. FIRST AID:

EYES: Irrigate with flowing water immediately and continuously for 15 minutes. Consult medical personnel.

SKIN: Wash thoroughly with soap and water. Seek medical attention if irritation persists.

INGESTION: Do not induce vomiting. Contains aromatic petroleum solvent. Call a physician or poison control center immediately.

INHALATION: Remove to fresh air if effects occur. If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

NOTE TO PHYSICIAN: Chlorpyrifos is a cholinesterase inhibitor. Treat symptomatically. If exposed, plasma and red blood cell cholinesterase tests may indicate significance.

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of exposure (baseline data are useful). Atropine, only by injection, is the preferable antidote. Oximes, such as 2-PAM/protopam, may be therapeutic if used early; however, use only in conjunction with atropine. In case of severe acute poisoning, use immediately after establishing an open airway and respiration. The decision of whether to induce vomiting or not should be made by an attending physician. If lavage is performed, endotracheal and/or esophageal control is suggested. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

5. FIRE FIGHTING MEASURES:

FLASH POINT: 221°F, 105°C

METHOD USED: SFCC

FLAMMABLE LIMITS (approximate - based on solvent-
@25°C, 77°F)

LFL: 1.8%

UFL: 11.8%

EXTINGUISHING MEDIA: Foam, CO₂, dry chemical

FIRE AND EXPLOSION HAZARDS: Toxic, irritating gases will be formed if product is involved in fire. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination.

FIRE-FIGHTING EQUIPMENT: Wear positive-pressure, self-contained breathing apparatus and full protective clothing.

6. ACCIDENTAL RELEASE MEASURES: (See Section 15 for Regulatory Information)

ACTION TO TAKE FOR SPILLS: For small spills, absorb with inert absorbent material, such as sand, ZORBALL, or dirt. Contain spill to keep out of sewers. For large spills, contact CHEMTREC and consult Dow AgroSciences for assistance.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: See label for end-use instructions. Avoid contact with eyes or skin. Avoid breathing vapor or spray mist. Store in original container in secured dry storage area. Prevent cross-contamination with other pesticides and fertilizers. Do not store above 100°F for extended periods of time. Storage below 20°F may result in formation of crystals. If product crystallizes, store at 50 to 70°F and agitate to redissolve crystals.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION:

These precautions are suggested for conditions with a high potential for exposure. If handling procedures are such that there is only a low potential for exposure, less protection may be needed. Emergency conditions may require additional precautions.

EXPOSURE GUIDELINES: Chlorpyrifos: ACGIH TLV and OSHA PEL are 0.2 mg/m³, Skin. ACGIH classification is A4. PELs are in accord with those recommended by OSHA, as in the 1989 revision of PELs.

ENGINEERING CONTROLS: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure guidelines. When respiratory protection is required for certain operations, use a NIOSH approved air-purifying respirator.

SKIN PROTECTION: Use gloves impervious to this material when prolonged or frequently repeated contact could occur.

EYE/FACE PROTECTION: Use chemical goggles.

9. PHYSICAL AND CHEMICAL PROPERTIES:

BOILING POINT: 456°F, 236°C

VAPOR PRESSURE: 2 mmHg @ 38°C, 101°F

VAPOR DENSITY: 4.10

SOLUBILITY IN WATER: Emulsifiable

SPECIFIC GRAVITY: 1.15 @ 20/20°C

APPEARANCE: Pale yellow liquid

ODOR: Aromatic (similar to mothballs)

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10. STABILITY AND REACTIVITY:

STABILITY: (CONDITIONS TO AVOID) Avoid heating above 50°C (122°F). Chlorpyrifos undergoes exothermic decomposition at approximately 130°C (266°F) which can lead to higher temperatures and violent decomposition if generated heat is not removed. Contains petroleum derivative solvent and will burn.

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID)
None known

HAZARDOUS DECOMPOSITION PRODUCTS: Under fire conditions, hydrogen chloride, ethyl sulfide, diethyl sulfide and nitrogen oxides can be formed.

HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION:

For detailed ecological data, write the address shown in Section 1 or call the emergency phone number.

MUTAGENICITY: Based on a majority of negative data and some equivocal or marginally positive results, chlorpyrifos is considered to have minimal mutagenic potential.

12. ECOLOGICAL INFORMATION:

For detailed ecological data, write the address shown in Section 1 or call the emergency phone number.

ECOTOXICOLOGY: Chlorpyrifos is toxic to avian, wildlife, fish, and aquatic organisms.

13. DISPOSAL CONSIDERATIONS:

DISPOSAL METHOD: Do not contaminate food, feed, or water by storage or cleaning of equipment. Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If wastes resulting from the use of this product cannot be disposed according to label instructions, dispose of these wastes at an approved facility. Contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA regional office for guidance.

14. TRANSPORT INFORMATION:

For DOT regulatory information, if required, consult transportation regulations, product shipping papers, or contact your Dow AgroSciences representative.

15. REGULATORY INFORMATION:

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations.

U.S. REGULATIONS

SARA 313 INFORMATION: To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard

A delayed health hazard

TOXIC SUBSTANCES CONTROL ACT (TSCA): All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

STATE RIGHT-TO-KNOW: The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

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<u>CHEMICAL NAME</u>	<u>CAS NUMBER</u>	<u>LIST</u>
CHLORPYRIFOS	002921-88-2	NJ3 PA1 PA3

NJ3=New Jersey Workplace Hazardous Substance
(present at greater than or equal to 1.0%).
PA1=Pennsylvania Hazardous Substance (present at
greater than or equal to 1.0%).
PA3=Pennsylvania Environmental Hazardous Substance
(present at greater than or equal to 1.0%).

OSHA HAZARD COMMUNICATION STANDARD: This
product is a "Hazardous Chemical" as defined by the OSHA
Hazard Communication Standard, 29 CFR 1910.1200.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

RATINGS:

Category	Rating
Health	2
Flammability	1
Reactivity	2

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or

SUPERFUND): This product contains the following
substance(s) listed as "Hazardous Substances" under
CERCLA which may require reporting of releases:

Category:

<u>Chemical Name</u>	<u>CAS#</u>	<u>RQ</u>	<u>% in Product</u>
Chlorpyrifos	002921-88-2	1	41.7%

16. OTHER INFORMATION:

MSDS STATUS:

Revised to reflect company name change

The Information Herein Is Given In Good Faith, But No
Warranty, Express Or Implied, Is Made. Consult Dow
AgroSciences For Further Information.